

Program Support for Mission Success



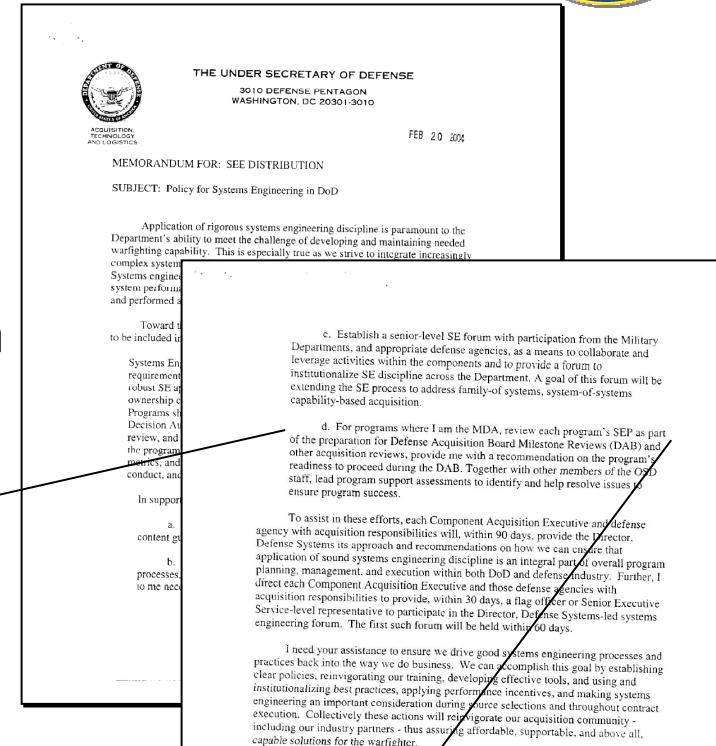
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USD(ATL) Imperatives

- “Provide a context within which I can make decisions about individual programs.”
- “Achieve credibility and effectiveness in the acquisition and logistics support processes.”
- “Help drive good systems engineering practices back into the way we do business.”



d. For programs where I am the MDA, review each program's SEP as part of the preparation for Defense Acquisition Board Milestone Reviews (DAB) and other acquisition reviews, provide me with a recommendation on the program's readiness to proceed during the DAB. Together with other members of the OSD staff, lead program support assessments to identify and help resolve issues to ensure program success.



Program Support relating to USD(ATL) Imperatives

Program Support is one of our key enablers to institutionalizing the USD(ATL) imperatives...

- Assist Program Offices and help implement disciplined Systems Engineering practices
- Support and provide oversight of Developmental T&E
- Provide expert advice to help identify and mitigate risks relating to **cost-schedule-performance** and achieve program success
- Provide senior leadership with needed information to support the decision making process



Program Executive Offices Program Managers





Evolution of SE Program Support

- Early-Mid 1990s: “Blue Book” Reviews
- 1998 - 2003: OSD developed Tri-Service Assessment Initiative (TAI)
 - Provide non-advocate assistance to PMs
 - Fee-for-Service Independent Expert Reviews
 - Initial software focus expanded to full program assessments
 - Successfully conducted 50 + TAI Assessments
- 2003 - 2004: Focus broadened to support OSD oversight reviews and to provide program support
 - Renewed interest in OSD oversight for decision making, re-energizing systems engineering, ensuring program success



Status of Current Program Support Methodologies

- DAPS Methodology built upon TAI assessment typology
 - Focus is primarily on ACAT ID and 1AM programs
 - Key assessment areas retained
 - Requirements, Resources, Management, Process, Product, and Environment
 - Assessment areas modified to emphasize systems engineering
 - More detailed criteria and related questions incorporated as guidelines
 - Scope now addresses pre-milestone decision criteria
- TAI will continue to provide Non-Advocate Reviews for PMs
 - TAI technical management has been transitioned to DCMA



ACAT 1D, 1AM, and Special Interest Programs

DAB/ITAB

Decision Support

OIPTs

Feedback

PM/PEO

Risk-Mitigation
(Recommendations)

DAPS Reviews

(Defense Acquisition Program Support)

Policy
Recommendations

Policy
Recommendations

Analysis

Requested Programs & Section 804 Oversight

Service/Agency
Oversight
Review

Decision Support

PM/PEO

Feedback

Acq
Exec

REQUEST

FINDINGS

REQUEST

FINDINGS

TAI Reviews

(Tri-Service Assessment Initiative)

Policy
Recommendations

Policy
Recommendations

Analysis

Systemic Analysis

Knowledge
Database

Trends

Research

Best Practices

Issue Analysis



Cornerstone for SE Program Support



DAPS “toolkit” is an enabler for...

- Assessments for DAB/ITAB via IIPT/OIPT process
- Non-Advocate Support Assessments (TAI)
- DAES Assessments
- Assessment of Operational Test Readiness (AOTR)
- SE & T&E support to PMs
- SEP and TEMP preparation and staffing for OSD approval
- **UNREPEATABLE, TAILORABLE, EXPORTABLE**



DAPS v0.9



ASSESSMENT METHODOLOGY FOR PRE-MILESTONE C

1.0	Mission Capabilities/Requirements Assessment Area	
	ASSESSMENT METHODOLOGY FOR PRE-MILESTONE B	
2.0	1.0	Mission Capabilities/Requirements Assessment Area
	ASSESSMENT METHODOLOGY FOR PRE-MILESTONE A	
3.0	2.0	1.0 Mission Capabilities/Requirements Assessment Area
		4
3.0	3.0	Sub-Area 1.1 - Operational Requirements 4
		2.0 Resources Assessment Area 9
4.0	4.0	Sub-Area 2.1 - Program Planning and Allocation 9
		Sub-Area 2.2 - Personnel 10
		Sub-Area 2.3 - Facilities 12
		Sub-Area 2.4 - Engineering Tools 13
		3.0 Management Assessment Area 16
		Sub-Area 3.1 - Acquisition Strategy/Process 16
		Sub-Area 3.2 - Project Planning 19
		Sub-Area 3.3 - Program and Project Management 21
		Sub-Area 3.4 - Contracting and Subcontracting 26
		Sub-Area 3.5 - Communication 28
		4.0 Technical Process Assessment Area 30
		Sub-Area 4.1 - Technology Assessment and Transition 30
		Sub-Area 4.2 - Requirements Development 31
		Sub-Area 4.3 - Functional Analysis & Allocation 32
		Sub-Area 4.4 - Design Synthesis 33
		Sub-Area 4.5 - System Integration, Test and Verification 35
		Sub-Area 4.6 - Transition to Deployment 37
		Sub-Area 4.7 - Process Improvement 38
		5.0 Technical Product Assessment Area 38
		Sub-Area 5.1 - System Description 38
		Sub-Area 5.2 - System Performance 42
		Sub-Area 5.3 - System Attributes 43
		6.0 Environment Assessment Area 44
		Sub-Area 6.1 - Statutory and Regulatory Environment 45



“Focus” Differences Between Milestones A, B, C (slide 1)



Pre-MS A Focus

- Initial Capabilities Documentation (ICD) for capabilities/requirements planning
- Results of system concept studies
- Analysis of Alternatives
- Technology Development Strategy
- Technology Development Planning
- Technology Risk Reduction
- Systems engineering planning



“Focus” Differences Between Milestones A, B, C (slide 2)



Pre-MS B Focus

- Results of Technology Development and Maturation
- Capabilities Development Documentation (CDD) for system requirements definition
- Feasibility and stability of requirements
- Incorporation of MOSA, Net Centric capability, etc.
- Acquisition Strategy
- Test and Evaluation Strategy
- Application of systems engineering process in design, test, and verification
- Design producibility and transition to production planning
- Logistics metrics including supportability, maintainability, and reliability



“Focus” Differences Between Milestones A, B, C (slide 3)



Pre-MS C Focus

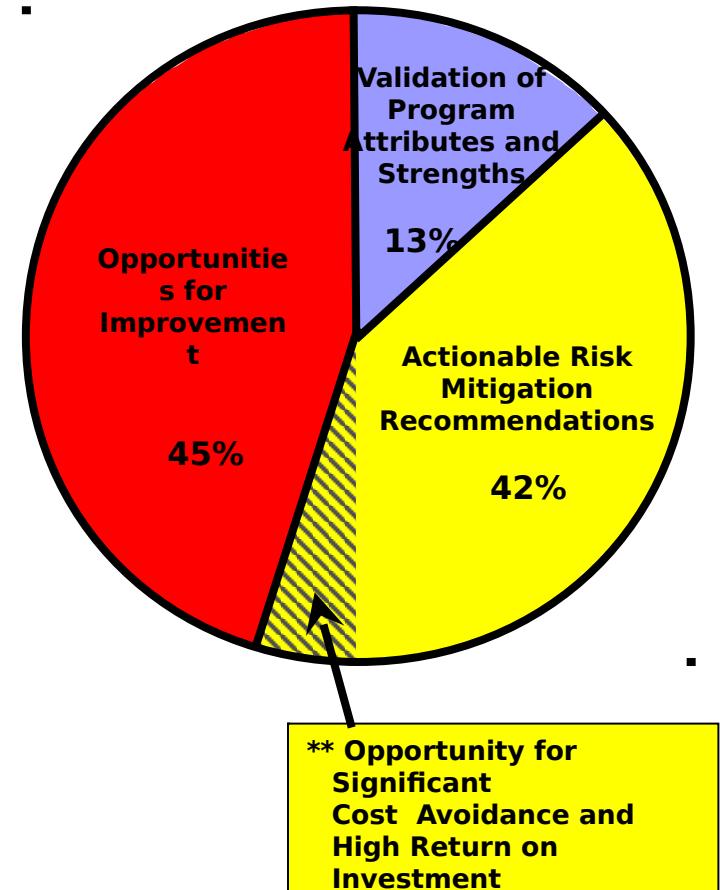
- Design Baseline status
- Status of system demonstration, test, and evaluation
- Execution of systems engineering process
- Production metrics and process controls
- Transition to production planning (materials, facilities, personnel, test)
- Operational Test verification
- Logistics metrics verification (including maintenance verification and training)



Emerging Results from Initial Program Reviews



- Implementation of over 240 “actionable” recommendations as a result of Defense Systems program reviews[†] is over 90% complete
 - 13% - Validation of Program Attribute Strengths
 - 45% - Opportunities for Improvement
 - 42% - Actionable Risk Mitigation Recommendations (5% significant cost avoidance **)
- Most Common issues:
 - Schedules driven by external influences
 - Activities not event driven
 - Requirements management (change control, traceability, Interoperability Requirements)
 - Technical Process (SE, T&E, Risk Management)



[†] Based on analysis of first six program reviews
Program Support for Mission Success - Defense Systems, Q3/Q4 (FY10)



Sample Review

Recommendations (slide 1)



- Formalize a process to work integration issues across program lines
 - Identify key dependencies within FoS by mission area
 - Work FoS integration issues via MOAs, IPTs, and associate contractor agreements
 - Work FoS Develop an integrated FoS master plan to link FoS activities
- Expand complementary system identification and issue resolution process beyond current PEO Management Process
 - Incorporate an issue resolution process into the current SoS management process
 - Expand the membership to include key programs from architecture development work
- Modify the Acquisition Strategy to demonstrate key functionality by MS C
 - Assess integration on mission system equipped aircraft
 - Adopt quantifiable MS C entrance criteria



Sample Program Recommendations (slide 2)



Develop MS C entrance Criteria that demonstrates key mode performance, manufacturing readiness level, and reliability

Entrance Criteria (examples)	Approach (examples)
<p>Reliability The reliability estimate of the <program> should be on the reliability growth curve with 80% confidence that corresponds to its requirement at the MS C</p> <p>Maintainability Demonstrate 80% of the diagnostics effectiveness (fault detection, fault isolation and false alarms) and prognostics requirements</p> <p>Manufacturing Demonstrate an Engineering Manufacturing Readiness Level (EMRL) of 4</p> <p>Mission Systems Demonstrate key <program component> functionality and SoS interoperability with complementary systems in the SIL and distributed interactive simulation</p> <p>Etc...</p>	<p>Reliability Mix of component and system level testing to demonstrate performance and analysis of approved modifications</p> <p>Maintainability Conduct a Maintenance Engineering Inspection in the SIL or test bed. Demonstrate functionality and insert a minimum of 30 faults on each sub-system</p> <p>Manufacturing Materials are fully characterized, in production and readily available. Three-sigma quality for:<ul style="list-style-type: none">- Manufacturing processes and procedures- Machines, tooling and inspection/test equipment</p> <p>No machine/tooling investments required</p> <p>Mission Systems Evaluate information assurance, spectrum management, etc.</p>



Providing Direct Support to Programs



- 12 program reviews have been conducted in FY04 since inception of the SE policy (Feb 04)
- 8 Non-Advocate Reviews (NARs) completed in FY04
- 17 programs are currently undergoing review (1st Quarter FY05)
- 23 program reviews (to date) are planned for CY05; this number is anticipated to at least double...



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